

**Translation of the Original Operating Manual**

<b>CLIENT</b>	<b>SERPA Packaging Solutions 93291 Visalia (CA) USA</b>
<b>END USER</b>	<b>GILEAD (Job 2098)</b>
<b>Machine Type</b>	<b>Automatic Turret Magazine RM-650</b>
<b>Machine No.</b>	<b>16-3680</b>
<b>Order No.</b>	<b>125816-00</b>
<b>Year of Manufacture</b>	<b>05/2016</b>

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*feeds to leaders.*

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# 1 General

## 1.1 Introduction

Before reading these Operating Instructions, you must read the document entitled "General Safety Instructions"!

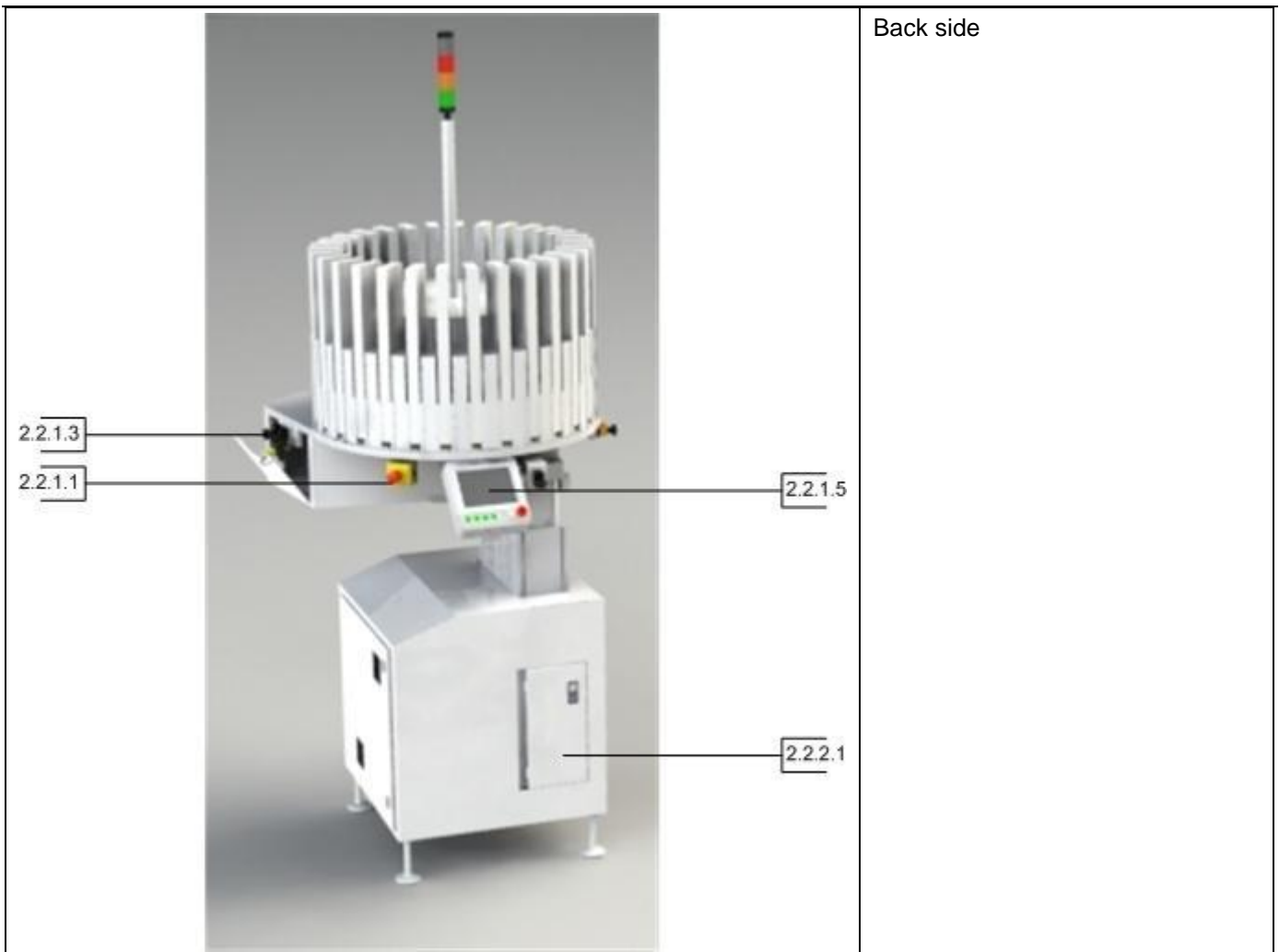
## 1.2 Explanation of Symbols

Symbols	Description
	<b>Caution</b> Indicates a warning about potential damage to the device or other physical assets if the corresponding precautions are not taken.
	<b>Danger</b> Means there is a danger to the life and health of the user if the corresponding precautions are not taken.
	<b>Warning</b> Means there is a danger of the user being crushed if the corresponding precautions are not taken.
	<b>Note</b> Contains important information that you definitely should comply with.

## 2 Function

### 2.1 Overview of Machine

Overview	Description
	<p>Front side</p>



## 2.2 Functional Description

### 2.2.1 Electrical System

The electrical system module includes all electrical parts of the machine and switch cabinet, for example motors and drives as well as their control units, initiators, switches, and fuses. The parts are identified by operating material identifiers (German abbreviation BMK). This can be used to identify parts in the circuit diagram and in the parts list.

#### 2.2.1.1 Emergency Stop

Description	Article number	Manufacturer
Emergency Stop button	M22-PV/KC02/IY+M22-XBK1+M22-KC10	Möller

Activating an Emergency Stop button causes the machine to come to a stop. All safety-relevant parts are deenergized and depressurized.

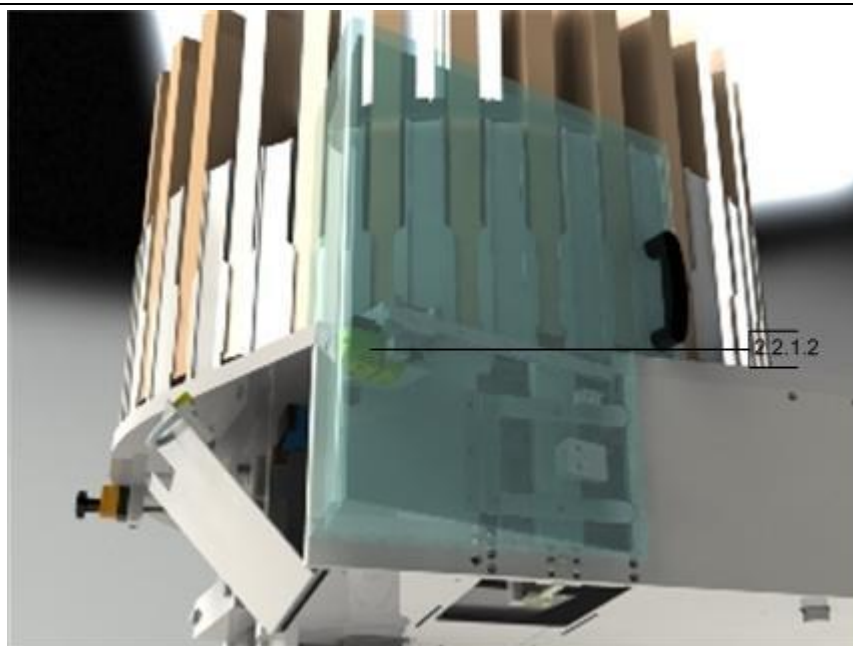
#### Built-in-line Emergency Stop



A built-in-line Emergency Stop button only works in connection with the master machine.

**2.2.1.2 Guard Door**

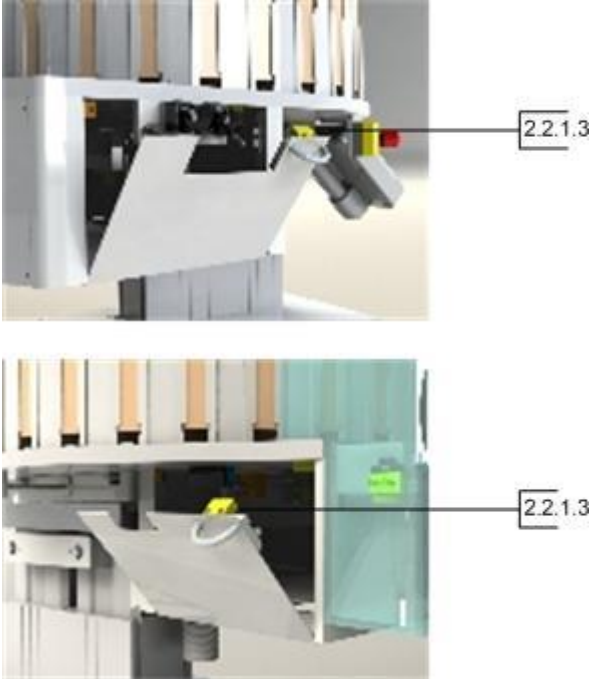
Description	Article number	Manufacturer
Safety switch	PSENMag2	Pilz

**Guard door**

Observe the safety clearances. It must be possible to open the guard door without obstruction.

Opening the guard door must cause the machine to come to a stop. All safety-relevant parts are deenergized and depressurized.

### 2.2.1.3 Maintenance Door

Description	Article number	Manufacturer
Safety switch	PSENMag2	Pilz
<b>Maintenance door</b>		
		

The maintenance door can be opened for maintenance and service works. Opening the maintenance door must cause the machine to come to a stop. All safety-relevant parts are deenergized and depressurized.

### 2.2.1.4 Electrical Cabinet

The electrical cabinet contains all components required for control and fuse protection.

### 2.2.1.5 Control Panel

To the left and right on the control panel are pushbuttons for starting Automatic mode, for starting individual dispensing processes, for acknowledging alarms and finally for activating and deactivating the supply belt. Above the pushbuttons is a color graphics touch panel that indicates the current operating state and shows menus.

### 2.2.1.6 Indicator Lights, Signals

Warning signal: Indicates a rotation.

Red light: Alarm.

Yellow light: Filling level.

Green light: Automatic on.

## 2.2.2 Pneumatic System

The pneumatic system module includes all pneumatic components of the machine.

### 2.2.2.1 Pneumatic Cabinet

The pneumatic cabinet contains all components required to control the pneumatic system.

## 2.2.3 Process

The machine process is mentioned below.

### 2.2.3.1 Rotation unit

The magazines are filled with the designated products which are moved to the stacker lift magazine by magazine.



### 2.2.3.2 Stacker lift

With the stacker lift the products within the magazines are reloaded.

### 2.2.3.3 Option Ejection unit

The Ejection unit decollates the products.

### 2.2.3.4 Option Dropping cylinder

The dropping cylinder drops the products.

## 3 Commissioning



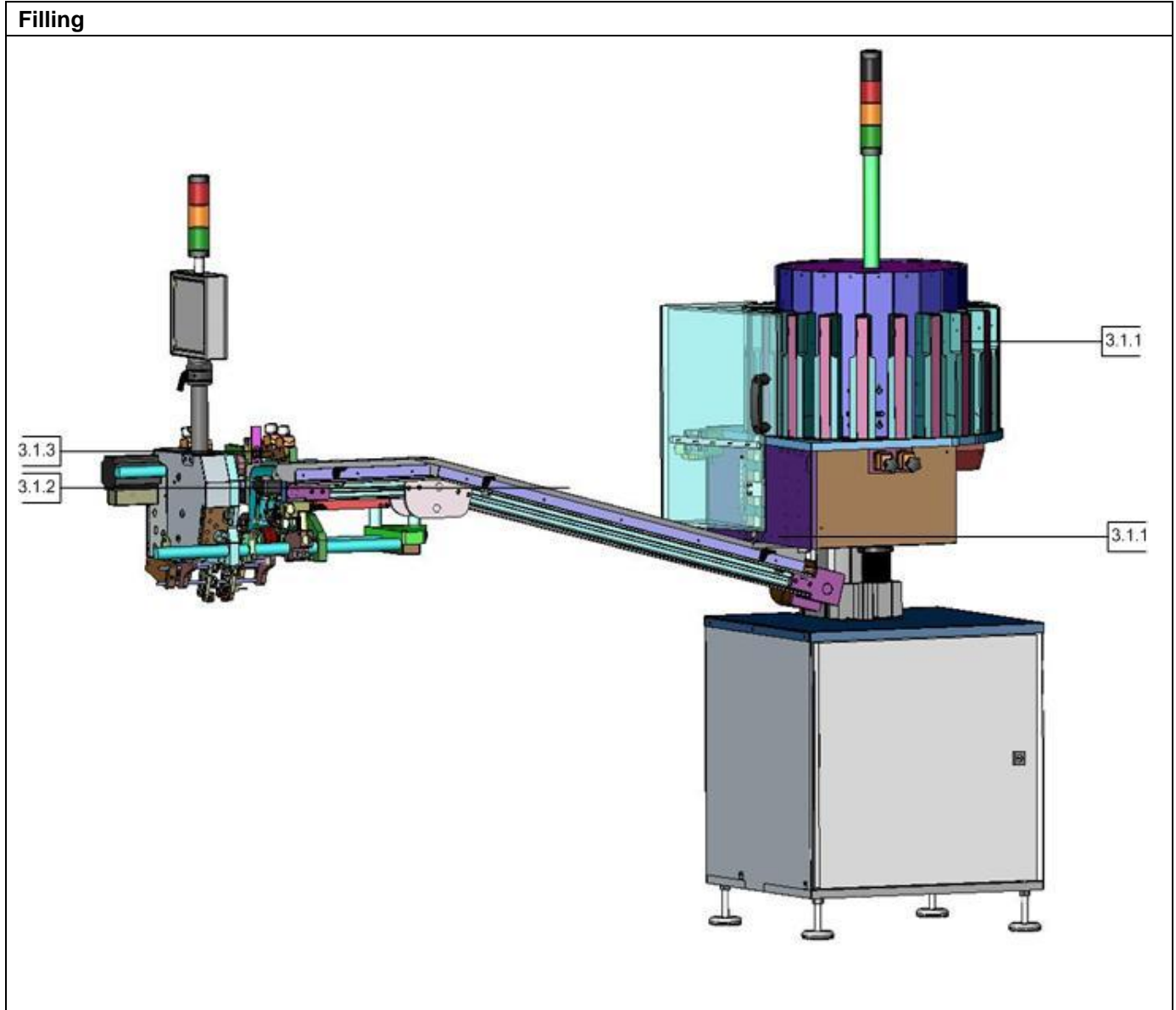
A description of function keys and visualization may be seen in the section on the control panel.

- Move the main switch to the "I" position. The machine starts the initialization process. When this happens, the operating system is booted and then the current project is loaded. No input is possible.
- Machine state "Alarm active". The machine has detected an alarm. Acknowledge the alarms with the Reset key.
- Machine state „Control stacker lift region, start init, “. Start the init with the Auto On key.
- Machine state „Init runs“. The machine components are initializing.
- Maschine state „Automatic off“. Fill the magazine with the products intended for it. See the section on initial filling.
- Automatic on state can be started by pressing the white Auto on key.

### 3.1 Initial Filling



The following section describes the steps to follow for an initial filling after initialization of the automatic turret magazine and (if it is present) in combination with the feeder magazine. If there is no feeder magazine combined follow only the steps for the initial filling of the automatic turret magazine.



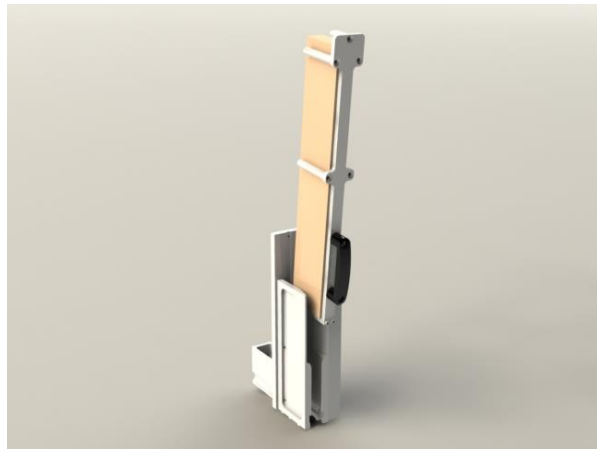
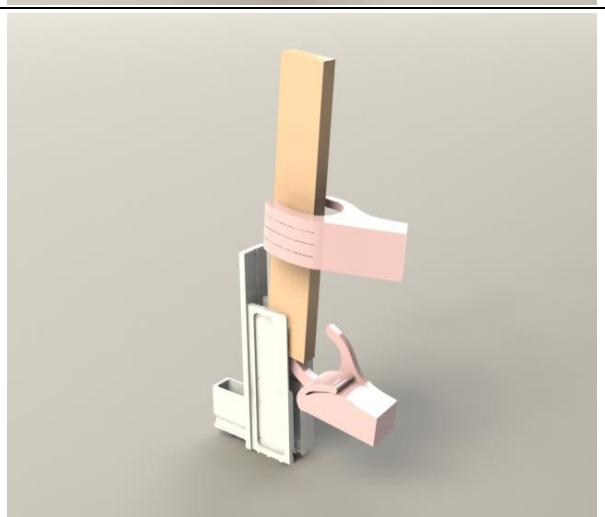
#### 3.1.1 Initial Filling of the automatic turret magazine

- Set the automatic turret magazine into automatic off state.
- Fill the magazines with the designated products.
- Set the automatic turret magazine into automatic on state.

**3.1.1.1 Initial Filling of the automatic turret magazine: Filling of loose products**

Filling of loose products	Description
	<p>Open the guard door. Fill in loose products as shown right.</p>

**3.1.1.2 Filling of the magazines**

Filling of the magazines	Description
	<p>Example filling of a magazine with an filling aid.</p>
	<p>Example manual filling of a magazine.</p>

### **3.1.2 Supply Belt Filled with Products**

- Perform initial filling of the automatic turret magazine in combination with the feeder magazine.
- Activate the supply belt with the Belt button on the feeder.
- Products inserted onto the supply belt are moved to the feeder by the supply belt.
- When the supply belt is filled with products up to the feeder shaft, it switches off automatically.
- Move the feeder to "Automatic mode On" status.

### **3.1.3 Initial Filling of the automatic turret magazine in combination with the feeder magazine**

- Perform initial filling of the automatic turret magazine.
- Set the feeder into manual mode state.
- Fill the feeder magazine with the designated products.
- Move the feeder to Manual mode status.
- Fill the feeder magazine with the designated products up to 10 [mm] below the transfer height of the supply belt

## 3.2 Production

### 3.2.1 Re-filling of the automatic turret magazine

The filling level light indicates that a re-filling is required. See chapter 3.1.1.2.

### 3.2.2 End of production

At a production end the machine has to be cleared completely of products. An additional control within the housing by opening the maintenance doors is recommended to clear product arrears.



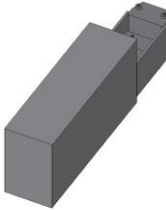

## 3.3 Format

### 3.3.1 Changing over format

At a production end the machine has to be cleared completely of products. An additional control within the housing by opening the maintenance doors is recommended to clear product arrears.

Afterwards the machine has to be rebuild according to the correct format.

### 3.3.2 Format Parts

Magazine w/o insert	Magazine w insert	Pusher	Format shaft
			

### 3.3.3 Format Table

Format	Product	Product stack	Magazine	Insert	Pusher	Format shaft	Mechanical adjustement		
							A	B	C

## 4 Control Panel

### 4.1 Function Keys



The machine is equipped with a control panel consisting of color-coded command and message devices (function keys).

#### 4.1.1 Function Keys

Function keys	Description
	<ol style="list-style-type: none"> <li>1. 4.1.1.1 White Automatic On Key</li> <li>2. 4.1.1.2 Black Automatic Off Key</li> <li>3. 4.1.1.3 (OPTION) Green Start Key</li> <li>4. 4.1.1.4 Blue Reset Key</li> <li>5. 4.1.1.5 Option</li> <li>6. 4.1.1.6 USB Interface</li> <li>7. 4.1.1.7 Option Emergency Stop</li> </ol>

##### 4.1.1.1 White Automatic On Key

White Automatic On Key	Description
	You can use the Automatic mode On key to start the initialization and to switch to "Automatic mode On".

##### 4.1.1.2 Black Automatic Off Key

Black Automatic Off Key	Description
	You can use the Automatic Off key to switch to "Automatic off mode".

##### 4.1.1.3 (OPTION) Green Start Key

Green Start Key	Description
	The Start key is used to trigger the process to supply a product.

##### 4.1.1.4 Blue Reset Key

Blue Reset Key	Description
	Malfunctions can be acknowledged with the Reset key if they are no longer active.

##### 4.1.1.5 Option

	Description

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**4.1.1.6 USB Interface**

USB Interface	Description
	Over the USB interface it is possible to load programs and exchange data.

**4.1.1.7 Option Emergency Stop**

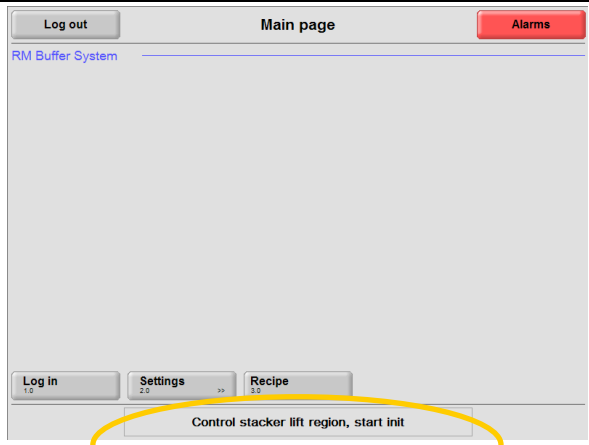
Option Emergency Stop	Description
	Activating an Emergency Stop button causes the machine to come to a stop. All safety-relevant parts are deenergized and depressurized.

**4.2 Visualization**

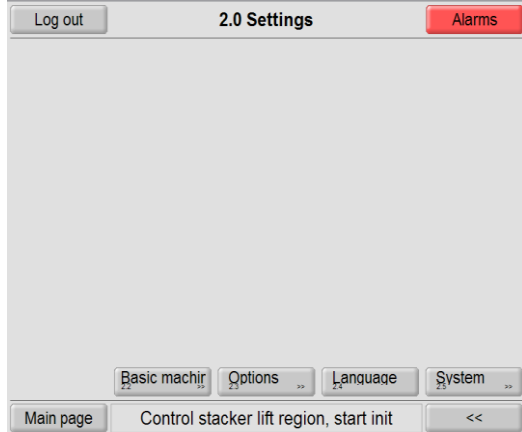
	The control panel has color graphics touch panel visualization..
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**4.3 Main page**

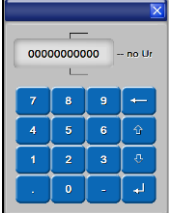


**4.4 Operating Status**

	<p><b>Description</b></p> <p>Visualization indicates the relevant operating state. The system distinguishes between operating states.</p> <table border="1"> <tr> <td>Bootup, load project</td> <td>The control system is booted and then the current project is loaded.</td> </tr> <tr> <td>Alarm active</td> <td>The machine has detected an alarm and shows the alarm.</td> </tr> <tr> <td>Control stacker lift region, start init</td> <td>The machine (-components) need to be initialized. The stacker lift region needs to be cleared.</td> </tr> <tr> <td>Init runs</td> <td>The machine (-components) are initializing.</td> </tr> <tr> <td>Automatic off</td> <td>Ready for "Automatic On" status.</td> </tr> <tr> <td>Automatic on</td> <td>The reloads automatically.</td> </tr> </table>	Bootup, load project	The control system is booted and then the current project is loaded.	Alarm active	The machine has detected an alarm and shows the alarm.	Control stacker lift region, start init	The machine (-components) need to be initialized. The stacker lift region needs to be cleared.	Init runs	The machine (-components) are initializing.	Automatic off	Ready for "Automatic On" status.	Automatic on	The reloads automatically.
Bootup, load project	The control system is booted and then the current project is loaded.												
Alarm active	The machine has detected an alarm and shows the alarm.												
Control stacker lift region, start init	The machine (-components) need to be initialized. The stacker lift region needs to be cleared.												
Init runs	The machine (-components) are initializing.												
Automatic off	Ready for "Automatic On" status.												
Automatic on	The reloads automatically.												

## 4.5 Navigation

	<p><b>Description</b></p> <p>The following buttons are used for navigation in menus.</p> <table border="1" data-bbox="785 358 1522 616"> <tr> <td>Main page</td> <td>Click this button to return to the main page.</td> </tr> <tr> <td>Alarm</td> <td>Click this button to go to the page with the alarm list.</td> </tr> <tr> <td>&lt;&lt;</td> <td>Click this button to to one level back.</td> </tr> <tr> <td>Menu jump</td> <td>You can use a menu selection button to go to the selected menu.</td> </tr> </table>	Main page	Click this button to return to the main page.	Alarm	Click this button to go to the page with the alarm list.	<<	Click this button to to one level back.	Menu jump	You can use a menu selection button to go to the selected menu.
Main page	Click this button to return to the main page.								
Alarm	Click this button to go to the page with the alarm list.								
<<	Click this button to to one level back.								
Menu jump	You can use a menu selection button to go to the selected menu.								

## 4.6 Input


Navigation	Symbol activated	Symbol Deactivated	Description
Numpad			When you click the Parameter button, the input screen appears. The current value is shown. A new value can be entered with the numeric keypad. Confirm the new value with OK.
On - Off			Functions can be activated and deactivated with the On - Off button.



## 4.7 Selection menus

### 1.0 Logging In

#### 1.1 Password

	<p><b>Description</b></p> <p>You can use the Login button to reach the password login window. The password can be entered and confirmed there. After the correct password has been entered, the current user level appears and the Logout button is activated.</p>  <p>Machine functions can be changed with passwords.</p>
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Password level	0	1	2	
1.1 Password				
2.0 Settings				
2.2 Basic machine				
2.3 Options				
2.4 Language				
2.5 System				
3.0 Recipe				

### 2.0 Settings

	<p><b>Description</b></p> <p>In the Settings area you can view and change information and parameter values for the machine and its components.</p> <table border="1" data-bbox="794 1429 1517 1630"> <tr> <td>2.1</td> <td></td> </tr> <tr> <td>2.2</td> <td>Basic machine</td> </tr> <tr> <td>2.3</td> <td>Options</td> </tr> <tr> <td>2.4</td> <td>Language</td> </tr> <tr> <td>2.5</td> <td>System</td> </tr> </table>	2.1		2.2	Basic machine	2.3	Options	2.4	Language	2.5	System
2.1											
2.2	Basic machine										
2.3	Options										
2.4	Language										
2.5	System										

#### 2.2 Basic machine

##### 2.2.1 Rotation unit

Parameter	Description	Range
Referencing velocity		0 - 64.8000 [°/s]
Rotation velocity		0 - 64.8000 [°/s]
Referencing position		0 - 360.0000 [°]
First filling level control position		0 - 360.0000 [°]

Second filling level control position		0 - 360.0000 [°]
Counter control position		0 - 360.0000 [°]
Stacker lift position		0 - 360.0000 [°]
Number of mags		0 - 50 [x]
Filling level control		Ein - Aus
Referencing control		0 - 60.000 [s]
Sensor control filling level		0 - 9.999 [s]
Audible warning signal		0 - 9.999 [s]

### 2.2.2 Stacker lift

Parameter	Description	Range
Referencing velocity		0 - 500.0000 [mm/s]
Reload velocity		0 - 500.0000 [mm/s]
Hand-over velocity		0 - 500.0000 [mm/s]
Drop-off velocity		0 - 500.0000 [mm/s]
Reference position		0 - 1000.0000 [mm]
Reload position		0 - 1000.0000 [mm]
Hand-over position		0 - 1000.0000 [mm]
Drop-off position		-10 - 1000.0000 [mm]
Referencing control		0 - 19.999 [s]
Reload control		0 - 9.999 [s]
Hand-over control		0 - 9.999 [s]
Drop-off control		0 - 19.999 [s]

### 2.2.3 Stacker cylinder

Parameter	Description	Range
Proximity sensor init		On - off
Proximity sensor backward		On - off
Proximity sensor forward		On - off
Init control		0 - 9.999 [s]
Forward control		0 - 9.999 [s]
Backward control		0 - 9.999 [s]
Position control		0 - 9.999 [s]
Forward delay		0 - 9.999 [s]
Backward delay		0 - 9.999 [s]

## 2.3 Options

### 2.3.1 Ejection unit

Parameter	Description	Range
Ejection unit		On - off
Referencing velocity		0 - 4000.000 [mm/s]
Forward velocity		0 - 4000.000 [mm/s]
Backward velocity		0 - 4000.000 [mm/s]
Reference position		0 - 1000.000 [mm]
Product position		0 - 1000.000 [mm]
Cam		0 - 1000.000 [mm]
Referencing control		0 - 19.999 [s]
Cam control		0 - 19.999 [s]
Ejection failure		On - off

Allowed ejection failures		1 - 100 [x]
Self-start		On - off
Self-start time		0 - 19.999 [s]

### 2.3.2 Dropping cylinder

Parameter	Description	Range
Cylinder		On - off
Proximity sensor init		On - off
Proximity sensor backward		On - off
Proximity sensor forward		On - off
Init control		0 - 9.999 [s]
Forward control		0 - 9.999 [s]
Backward control		0 - 9.999 [s]
Position control		0 - 9.999 [s]
Forward delay		0 - 9.999 [s]
Backward delay		0 - 9.999 [s]
Drop control		On - off
Drop control		0 - 19.999 [s]

### 2.3.3 Discharge belt

Parameter	Description	Range
Discharge belt		On - off
Velocity		0 - 140 [%]
Start ramp		0 - 9.999 [s]
Stop ramp		0 - 9.999 [s]
Start delay		0 - 9.999 [s]
Stop delay		0 - 9.999 [s]
Runtime surveillance		0 - 600.000 [s]
G-VRAMP		0 - 10000 [rpm/s]

## 2.4 Language

Language selection	Description	
German		
English		
...		

## 2.5 System

### 2.5.1 System control

Parameter	Description	Range
Compressed air control		On - off
Temperature surveillance		On - off
Temperature surveillance time		0 - 600.000 [s]

### 2.5.2 Mode

Parameter	Description	Range
Empty run		On - off

### 2.5.3 Configuration

#### 2.5.3.2 Drives

### 2.5.3.2.1 Drive 1

Parameter	Description	Range
Acceleration		0 - 648.0000 [°/s <sup>2</sup> ]
Deceleration		0 - 648.0000 [°/s <sup>2</sup> ]
S-curve		0 - 0.100 [s]
Actual position		[°]
Allowed position error		0 - 10.0000 [°]
Allowed contouring error		0 - 10.0000 [°]
Maximum contouring error		[°]
Maximum current		-15000 - 15000[mA]
Current monitor		[mA]
Inching		
Inching distance		0 - 360.0000 [°]

### 2.5.3.2.2 Drive 2

Parameter	Description	Range
Acceleration		0 - 5000.0000 [mm/s <sup>2</sup> ]
Deceleration		0 - 5000.0000 [mm/s <sup>2</sup> ]
S-curve		0 - 0.100 [s]
Actual position		[mm]
Allowed position error		0 - 10.0000 [mm]
Allowed contouring error		0 - 10.0000 [mm]
Maximum contouring error		[mm]
Maximum current		-15000 - 15000[mA]
Current monitor		[mA]
Inching		
Inching distance		0 - 1000.0000 [mm]

### 2.5.3.2.3 Drive 3

Parameter	Description	Range
Acceleration		0 - 40000.000 [mm/s <sup>2</sup> ]
Deceleration		0 - 40000.000 [mm/s <sup>2</sup> ]
S-curve		0 - 0.100 [s]
Actual position		[mm]
Allowed position error		0 - 10.0000 [mm]
Allowed contouring error		0 - 10.0000 [mm]
Maximum contouring error		[mm]
Maximum current		-15000 - 15000[mA]
Current monitor		[mA]
Inching		
Inching distance		0 - 1000.000 [mm]

### 2.5.3.3 Inputs

Image of the inputs.

### 2.5.3.4 Outputs


Image of the outputs.

### 2.5.3.5 Date/Time

Parameter	Description	Range
-----------	-------------	-------

Date		[dd.mm.yyyy]
Time		[hh:mm:ss]

### 2.5.4 User Management

Parameter	Description	Range
Password level 0	Password level 0	
Password level 1	Password level 1	1462
Password level 2	Password level 2	8462
Password level 3	Password level 3	
Time out	Password level logout time. Log-out occurs after this time expires	15.000 - 999.999 [s]
Log out button		

### 2.5.5 Informationen

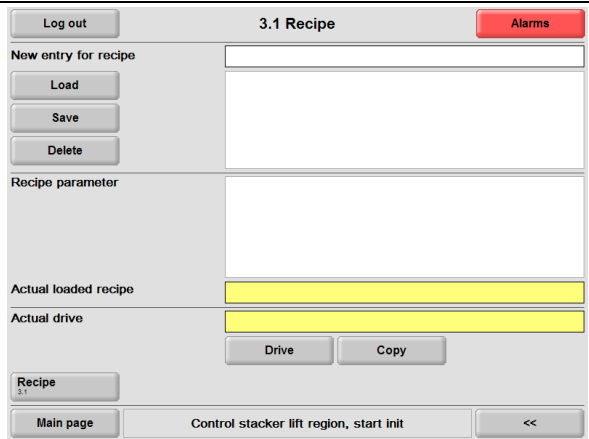
#### 2.5.5.1 Version

Parameter	Description	Range
Project name	RM_Progr_SiTek	
Version	V#.#	
IP number	###.###.###	

#### 2.5.5.2 Counter

Parameter	Beschreibung	Bereich
Processed magazines		[x]

### 3.0 Recipe

	<p><b>Description</b></p> <p>Recipe administration</p>
<p><b>Funktionen</b></p> <p>New entry for recipe</p> <p>Load</p> <p>Save</p> <p>Delete</p> <p>Recipe list</p> <p>Recipe parameter</p> <p>Actual loaded recipe</p>	<p><b>Description</b></p> <p>After you click on the input field, you can enter a new recipe name</p> <p>To load the selected recipe, click Load.</p> <p>After a new recipe name has been entered, click Save to save the recipe</p> <p>To delete the recipe selected in the recipe list, click Delete.</p> <p>The commands explained above, Load and Delete, can be used to select the desired recipe.</p> <p>If a recipe is selected in the recipe list, the recipe parameters defined in that recipe parameter list by the manufacturer appear. The values can be changed directly from this list. Values that have just been set are not transferred until the recipe is reloaded</p> <p>Display of currently loaded recipe</p>

Actual drive	You can switch between drives C: and F: The C: drive is located on the controller. The F: drive is a USB stick (external data carrier) that can be inserted
Change drive	You can switch between drives C: and F: with this button.
Copy	When a recipe is selected from the recipe list on the C: or F: drive, the currently selected recipe is copied to the corresponding drive.
Messages during working with the recipes.	<ul style="list-style-type: none"> <li>• Really delete?</li> <li>• Delete failed!</li> <li>• No name declared!</li> <li>• File already existing!</li> <li>• Load failed!</li> <li>• Load successful!</li> <li>• Save failed!</li> <li>• Save successful!</li> <li>• Import/Export failed!</li> <li>• Import/Export successful!</li> <li>• Undefined error occurred!</li> <li>• Export failed!</li> <li>• Export successful!</li> </ul>

## 4.8 Alarm List

		<p><b>Description</b></p> <p>Alarms that occur are shown as follows in the alarm list.</p>	
Date	Time	Num.	Description
dd:mm:yy	hh:mm:ss	Alarm number	Alarm description

## 5 Alarms

### 5.1 Safety Instructions

	<p>Malfunctions may only be remedied by</p> <ul style="list-style-type: none"> <li>• Persons authorized to do so as a result of their training and qualification.</li> <li>• Persons authorized to do so by the machine owner.</li> <li>• Observe the instructions in the document "General Safety Instructions"!</li> </ul>
--	--

### 5.2 Effects of Alarms



Machine damage.

Inserting or removing products improperly may result in damage to the machine. Only allow trained persons to insert or remove products.

Danger of death.

Dangerous electrical currents and voltages on the machine may injure or kill people. Only electricians are permitted to perform jobs on the electrical equipment of the machine according to relevant electrical regulations.

Warning – hand injuries.

There is danger of crushing the whole time the machine is in dispensing mode.

### 5.3 General Procedure for Remediating Malfunctions

Before starting troubleshooting, check all settings and compare them with the parameter list.

In the event of machine malfunctions, first check:

- Electrical power supply
- Compressed air supply

### 5.4 Preparations for Remediating Malfunctions

After improper functioning in the magazine area, clear the magazine area. Observe the safety operating status display. Failure to observe this instruction may result in serious damage and improper settings on the machine caused by jammed products.

If necessary, switch off the machine according to the instructions in document “General Safety Instructions” and secure to prevent unexpected restarting.

Inform the operating personnel.

### 5.5 Types of Errors

Types of errors	Machine status	Acknowledgement	Machine status
Simple malfunction	The machine sequence is interrupted.	After the error source is eliminated, click Reset	The machine does not need to be reinitialized. You can continue to work directly in Automatic mode.
Permanent malfunction	The machine sequence is interrupted.	After the error source is eliminated, click Reset.	The machine (components) do not need to be reinitialized.
Safety circuit open	The machine sequence is interrupted. Electrical power and compressed air to the machine are shut off.	After the error source is eliminated, click Reset.	The machine (components) must be initialized or you will be unable to work directly in Automatic mode.

### 5.6 Alarm and Message Texts on the Machine

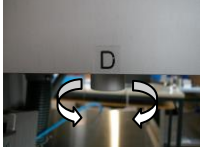
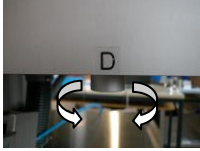
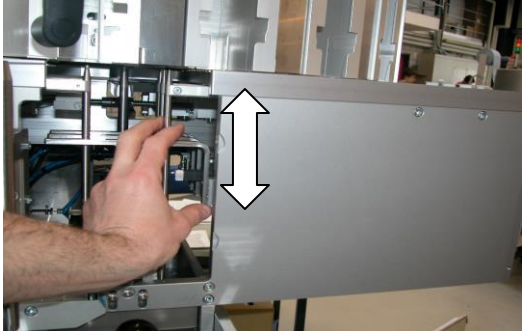
#### 5.6.1 Table Information about Malfunctions and Remedies

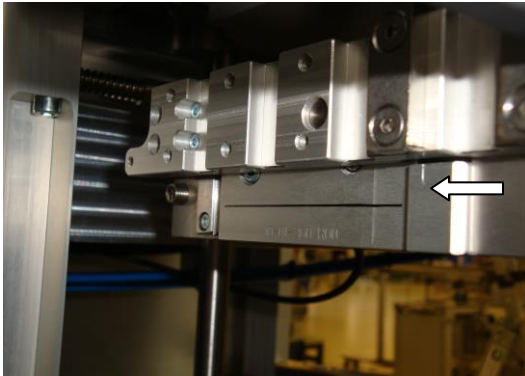
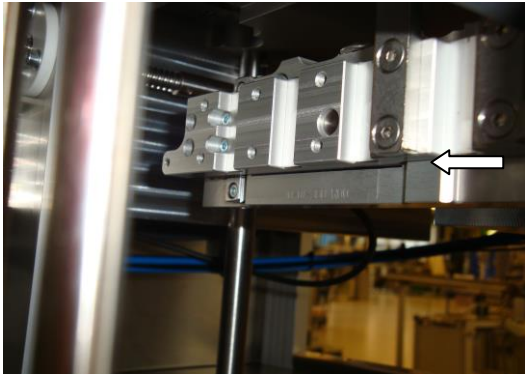
No.	EI	Alarm message	Causes	Remedy
1	20S5	Emergency Stop	Emergency Stop locked.	Unlock Emergency Stop. Click Reset.
2	20B1	Guard door control	The guard door was opened.	Close the guard door. Click Reset.
3	19B1 19B2	Maintenance door control	A maintenance door was opened.	Close the maintenance door. Click Reset.
10	13B6	Compressed Air control	Compressed air is too low or sensor is faulty.	Check compressed air Check sensor. After the malfunction is eliminated, click Reset to acknowledge.
11		Module slot 1 control	Missing or fault/defect or wrong module in	Check module. Check electrical installation. Check mechanical mounting.

			slot 1.	Click Reset. It may be necessary to turn the machine off and back on.
12		Module slot 2 control	Missing or fault/defect or wrong module in slot 2.	Check module. Check electrical installation. Check mechanical mounting. Click Reset. It may be necessary to turn the machine off and back on.
13		Module slot 3 control	Missing or fault/defect or wrong module in slot 3.	Check module. Check electrical installation. Check mechanical mounting. Click Reset. It may be necessary to turn the machine off and back on.
14		Module slot 4 control	Missing or fault/defect or wrong module in slot 4.	Check module. Check electrical installation. Check mechanical mounting. Click Reset. It may be necessary to turn the machine off and back on.
15		ETV IO	Digital In- and Outputs failure at the ETV Controller.	Check Digital In- and Outputs at the ETV Controller. Check electrical installation. Check mechanical mounting. Click Reset. It may be necessary to turn the machine off and back on.
19		CPU battery empty, change battery!	The ETV controller backup battery must be replaced, since it is almost completely discharged.	The CPU battery must be replaced. If it is not, permanent storage of data in memory can no longer be ensured after the machine is turned off. Do not turn the machine off to replace the battery!!!! Install the new battery according to the instructions from Sigmatek. After the battery has been replaced, the malfunction can be acknowledged with Reset.
20		Automatic off button during init	The automatic off button was pressed during init. Button is defect or wrong electrical installation.	Check button Click Reset to acknowledge.
100		Cabinet temperature control	The temperature has exceeded the adjusted temperature barrier.	Check the thermostat and the cabinet cooler. Click Reset to acknowledge.
300		Rotation unit servo drive error num.:	Servo controller malfunction. See Section 5.6.2.	Click Reset. It may be necessary to turn the machine off and back on.
301		Rotation unit servo drive software error	The servo drive control software detects an error.	Check contouring error. Click Reset to acknowledge. It may be necessary to turn the machine off and back on.
302		Rotation unit misses reference.	The Rotation unit has to be initialized.	Click Reset to acknowledge.
303	3B4	Rotation unit init failed	The rotation unit is seized. Surveillance time too short. Sensor is defect or wrong electrical	Check surveillance time. Check the sensor. Click Reset to acknowledge.



			installation or wrong mechanical assembly or polluted.	
304		Rotation unit position control	Rotation unit is outside the defined position.	Check position. Click Reset to acknowledge.
305	13B7	Rotation unit empty	The filling level control checked the adjusted number of mags and detected them as empty.	Fill the mags. Click Reset to acknowledge.
306	13B6 13B7	Rotation unit sensor control filling level	Sensors are defect or wrong electrical installation or wrong mechanical assembly or polluted.	Check the sensor. Click Reset to acknowledge.
307		Rotation unit positions changed	The filling level control positions changed.	Click Reset to acknowledge.
308		Rotation unit over-current	The actual current exceeds the adjusted value.	Adjust the over current value. Click Reset to acknowledge.
309		Number of mags	The actual number of mags is not equal to the number found during initialization.	Control number of mags. Click Reset to acknowledge.
310		Stacker lift servo drive error num.:	Servo controller malfunction. See Section 5.6.2.	Click Reset. It may be necessary to turn the machine off and back on.
311		Stacker lift servo drive software error	The servo drive control software detects an error.	Check contouring error. Click Reset to acknowledge. It may be necessary to turn the machine off and back on.
312		Stacker lift misses reference.	The stacker lift has to be initialized.	Click Reset to acknowledge.
313	3B5	Stacker lift init failed	The stacker lift is seized. Product jam in the stacker lift region. Surveillance time too short. Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Control the stacker lift region. Check surveillance time. Check the sensor. Click Reset to acknowledge.
314		Stacker lift position control	The stacker lift is outside the defined position.	Check position. Click Reset to acknowledge.
315		Stacker lift reload failed	Product jam in the stacker lift region. Wrong Position or surveillance time.	Control the stacker lift region. Check position. Check surveillance time. Click Reset to acknowledge..
316		Stacker lift hand over	Product jam in the	Control the stacker lift region.

		failed	stacker lift region. Wrong Position or surveillance time.	Check position. Check surveillance time. Click Reset to acknowledge.
317		Stacker lift drop off failed	Product jam in the stacker lift region. Wrong Position or surveillance time.	Control the stacker lift region. Check position. Check surveillance time. Click Reset to acknowledge.
318	12B1	Stacker lift end switch at the top	Movement into end switch. Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Move the stacker lift outside the end switch. Check the sensor. Click Reset to acknowledge. 
319	12B2	Stacker lift end switch at the bottom	Movement into end switch. Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Move the stacker lift outside the end switch. Check the sensor. Click Reset to acknowledge. 
320	12B6	Stacker lift sensor control reload	Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Check the sensor. Click Reset to acknowledge.
321	12B4	Stacker lift sensor control collision detection	Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Check the sensor. Click Reset to acknowledge.
322	12B3	Stacker lift sensor control min. filling level	Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Check the sensor. Click Reset to acknowledge.
323	12B5	Stacker lift collision	The stacker lift crashed mechanically.	Move the stacker lift in its correct position mentioned below. Click Reset to acknowledge. 

				 
324	12B4	Stacker lift collision detection	The stacker lift detects a possible collision during its init movement.	Control stacker lift region. Click Reset to acknowledge.
325		Stacker lift over-current	The actual current exceeds the adjusted value.	Adjust the over current value. Click Reset to acknowledge.
330		Stacker cylinder init failed	Cylinder movement couldn't accomplish completely. Compressed air switched off. Surveillance time too short. Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Control stacker lift region. Check compressed air. Check surveillance time. Check the sensor. Click Reset to acknowledge.
331	12B7	Stacker cylinder forward movement failed	Cylinder movement couldn't accomplish completely. Compressed air switched off. Surveillance time too short. Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Control stacker lift region. Check compressed air. Check surveillance time. Check the sensor. Click Reset to acknowledge.
332	12B8	Stacker cylinder	Cylinder movement	Control stacker lift region.

		backward movement failed	<p>couldn't accomplish completely.</p> <p>Compressed air switched off.</p> <p>Surveillance time too short.</p> <p>Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.</p>	<p>Check compressed air.</p> <p>Check surveillance time.</p> <p>Check the sensor.</p> <p>Click Reset to acknowledge.</p>
333	12B7	Stacker cylinder position control rear	<p>Cylinder is outside the defined position.</p> <p>Compressed air switched off.</p> <p>Surveillance time too short.</p> <p>Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.</p>	<p>Check compressed air.</p> <p>Check surveillance time.</p> <p>Check the sensor.</p> <p>Click Reset to acknowledge.</p>
334	12B8	Stacker cylinder position control in front	<p>Cylinder is outside the defined position.</p> <p>Compressed air switched off.</p> <p>Surveillance time too short.</p> <p>Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.</p>	<p>Check compressed air.</p> <p>Check surveillance time.</p> <p>Check the sensor.</p> <p>Click Reset to acknowledge.</p>
340		Ejection unit servo drive error num.:	Servo controller malfunction. See Section 5.6.2.	Click Reset. It may be necessary to turn the machine off and back on.
341		Ejection unit servo drive software error	The servo drive control software detects an error.	<p>Check contouring error.</p> <p>Click Reset to acknowledge.</p> <p>It may be necessary to turn the machine off and back on.</p>
342		Ejection unit misses reference.	The ejection unit has to be initialized.	Click Reset to acknowledge.
343	3B6	Ejection unit init failed	<p>The ejection unit is seized.</p> <p>Product jam in the ejection unit region.</p> <p>Surveillance time too short.</p> <p>Sensor is defect or wrong electrical installation or wrong mechanical assembly or</p>	<p>Control the ejection unit region.</p> <p>Check surveillance time.</p> <p>Check the sensor.</p> <p>Click Reset to acknowledge.</p>

			polluted.	
344	13B2	Ejection unit end switch rear	Movement into end switch. Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Move the ejection unit outside the end switch. Check the sensor. Click Reset to acknowledge.
345	13B1	Ejection unit end switch in front	Movement into end switch. Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Move the ejection unit outside the end switch. Check the sensor. Click Reset to acknowledge.
346		Ejection unit collision	The ejection unit is seized. Product jam in the ejection unit region.	Control the ejection unit region. Click Reset to acknowledge.
347	13B3	Ejection unit counter control	Missing a product after an ejection. Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Control the ejection unit region. Check the sensor. Click Reset to acknowledge.
348		Ejection unit positions changed	The cam positions changed.	Click Reset to acknowledge.
349		Ejection unit over-current	The actual current exceeds the adjusted value.	Adjust the over current value. Click Reset to acknowledge.
350	13B3	Ejection unit product location control	The product location control is active.	Control stacker lift and ejection unit region. Check the sensor. Click Reset to acknowledge
351		Ejection unit position control	The ejection unit is outside it's defined position.	Check position. Click Reset to acknowledge.
360		Dropping cylinder init failed	Cylinder movement couldn't accomplish completely. Compressed air switched off. Surveillance time too short. Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Control stacker lift region. Check compressed air. Check surveillance time. Check the sensor. Click Reset to acknowledge
361	13B4	Dropping cylinder forward movement failed	Cylinder movement couldn't accomplish completely. Compressed air switched off.	Control stacker lift region. Check compressed air. Check surveillance time. Check the sensor.

			Surveillance time too short. Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Click Reset to acknowledge
362	13B5	Dropping cylinder backward movement failed	Cylinder movement couldn't accomplish completely. Compressed air switched off. Surveillance time too short. Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Control stacker lift region. Check compressed air. Check surveillance time. Check the sensor. Click Reset to acknowledge.
363	13B4	Dropping cylinder position control in front	Cylinder is outside the defined position. Compressed air switched off. Surveillance time too short. Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Check compressed air. Check surveillance time. Check the sensor. Click Reset to acknowledge.
364	13B5	Dropping cylinder position control rear	Cylinder is outside the defined position. Compressed air switched off. Surveillance time too short. Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Check compressed air. Check surveillance time. Check the sensor. Click Reset to acknowledge.
365		Dropping cylinder drop control	The dropping failed. Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Check the dropping cylinder area. Check the sensor. Click Reset to acknowledge.
370		Discharge belt servo drive error num.:	Servo controller malfunction. See Section 5.6.2.	Click Reset. It may be necessary to turn the machine off and back on.
371		Discharge belt runtime	The runtime to	Click Reset.

		surveillance.	cover the fill level detection has exceeded.	
372		Discharge belt sensor control	Sensor is defect or wrong electrical installation or wrong mechanical assembly or polluted.	Check the sensor. Click Reset to acknowledge.

### 5.6.2 Table with Possible Axis Malfunctions

Error number	Description
0	Mains phase (1-phase supply)
1	Mains fault
3	Over Voltage DC-Link
4	Under Voltage DC-Link
6	Holding brake error
7	Holding brake switch damaged
9	Motor thermostat
10	Ambient temperature
11	Heat sink temperature
12	Feedback error
13	Commutation error
14	Over speed
15	Contouring error
16	Trajectory error
17	Host communication error
18	Drive error ramp
19	Drive error no ramp
20	External enable locked error
21	IGBT drive voltage error
22	Max. Regen power error
23	24V Brake supply error
24	External brake enable error
25	I <sup>2</sup> T error
26	Motor temperature warning
27	Motor parameter error
28	Multi-turn position error



## 6 Backup and restore

A backup of the program is impossible without any utilities. RonTech AG provides a restore. The backup of the parameters, respectively. recipes is described as follows.

### 6.1 Backup of the parameters

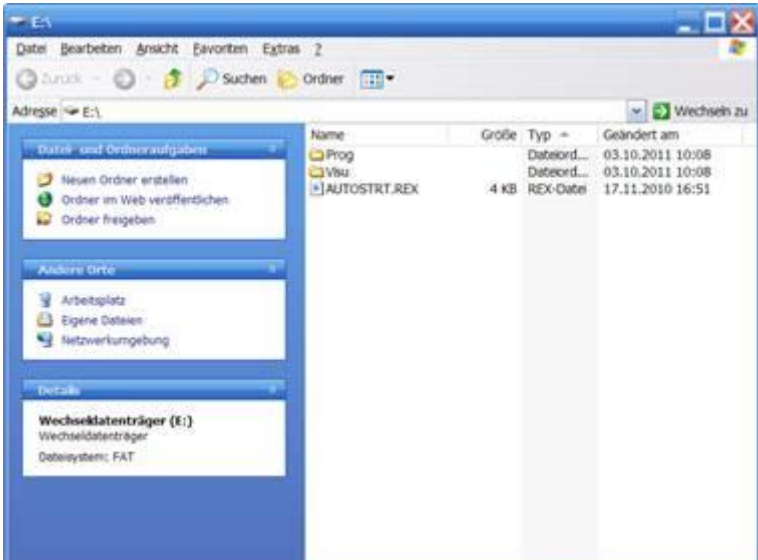
- Switch on the page recipes
- Plug in a USB stick. The display drive shows the drive letter for the USB stick.
- Press the drive button to switch on the system drive C:\.
- Press the button Copy.
- A pop-up message, import/export successfully, confirms the backup of the parameters.

### 6.2 Disaster Recovery

#### 6.2.1 Restore of the program

- Unpack the restore archive to the root (top) level of a USB stick. Following bootstick.

#### Example directory structure on the bootstick

Description	picture
Directory structure on the bootstick: Prog, Visu, AUTOSTRT.REX...	

#### 6.2.2 Restore process

- Switch off the machine.
- Plug in the prepared bootstick.
- Switch on the machine.
- Wait until the following text on the screen shows: "Press Enter to continue".
- Switch off the machine.
- Unplug bootstick.
- Switch on the machine and the check the version.
- Go to the page Recipes
- Plug in the USB stick with the backup parameters, respectively. Recipes.
- The display drive shows the drive letter for the USB stick.
- Press the button Copy.
- A pop-up message, import/export successfully, confirms the import of the backup parameters.
- Download the appropriate recipe.



## 7 Maintenance

### 7.1 General



Each time before performing maintenance on the machine, turn the machine and all power supplies off and protect the machine and all power supplies from being turned on again.

Observe the safety regulations in document "General Safety Instructions"!

Installation, commissioning, maintenance and testing of the equipment may only be performed by properly qualified and authorized electrical experts familiar with the safety standards of automation and electrical drive power systems.

The installation, wiring or opening of components may only take place after the machine has been separated from the electric power supply and may only be performed by properly qualified and authorized personnel.

Check live cables and wires to which the components are connected regularly for insulation damage or breaks. Should a defect be found in the cables or wiring, the machine must be disconnected from the electric power supply immediately.

Prior to commissioning, check whether the permissible voltage range conforms to the local mains power.

Check the machine periodically for loose screw connections and if necessary retighten them.

Check for excessive wear and resulting damage.

Replace partially broken or bent parts.

Protect the machine from possible hazards, such as falling objects.

#### 7.1.1 Maintenance Tables

	The individual maintenance jobs are listed one after the other in the maintenance tables with an indication of the times required for each job.
--	---

Activity	50	200	500	1000	2000	Comments

	<p><b>Activity:</b> Jobs to be performed</p> <p><b>Maintenance intervals:</b></p> <ul style="list-style-type: none"> <li>• 50: Perform maintenance task every 50 operating hours or weekly.</li> <li>• 200: Perform maintenance task every 200 operating hours or monthly.</li> <li>• 500: Perform maintenance task every 500 operating hours or quarterly.</li> <li>• 1000: Perform maintenance task every 1000 operating hours or semi-annually.</li> <li>• 2000: Perform maintenance task every 2000 operating hours or annually.</li> </ul> <p><b>Comments / auxiliary materials:</b> Reference to required auxiliary material (lubricant).</p>
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#### 7.1.2 Auxiliary Materials Table

	You can find suitable auxiliary materials / lubricants for maintenance in the auxiliary materials table.
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Auxiliary material	Oil lubrication	Grease lubrication	Number
Shell Alvania AS2		X	1
Lubrication oil: ISO V32-68	X		2

### 7.1.3 Lubricants for the food-processing and pharmaceutical industries (FDA H1)

Auxiliary material	Oil lubrication	Grease lubrication	Number
Klübersynth UH1 14-151		X	3
Klüberoil 4 UH1 32N...100N	X		4

## 7.2 Safety Equipment

Activity	50	200	500	1000	2000	Comments
Emergency stop	X					Function test.
Guard door	X					Function test.
Guard door hinges				X		Lubrication time / 1 or 3.
Maintenance doors	X					Function test.

## 7.3 Drives

Activity	50	200	500	1000	2000	Comments
Threaded spindle				X		Check for dirt. Check for wear. Clean if necessary.
Linear Guides				X		Check for dirt. Check for wear. Clean if necessary. Lubrication time / 2 or 4. Applicate 2 or 4 with a tab on the linear guides and move the guiding wagon over the complete distance.
Gear check					X	Check for dirt. Check for wear. Clean if necessary.
Pulley check					X	Check for dirt. Check for wear. Clean if necessary.
Belt check					X	Check for dirt. Check for wear. Clean if necessary.

## 7.4 Pneumatic Cylinder

Activity	50	200	500	1000	2000	Comments
Check cylinder stroke	X					Check for dirt. Check for adjustability. Clean if necessary.

## 7.5 Sensors

Activity	50	200	500	1000	2000	Comments
Sensor check	X					Function test. Check for dirt. Check for adjustability.


						Clean if necessary.
--	--	--	--	--	--	---------------------

## 7.6 Wear Parts


Activity	50	200	500	1000	2000	Comments
Replace wear parts					X	Order according to mechanical parts list..

## 7.7 Service Interval

Activity	50	200	500	1000	2000	Comments
Perform service					X	Verification of process flow and safety-related components by RonTech AG or its representative.


	The operator is responsible for monitoring the operating hours.
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## 8 Mechanical Settings

	Please note the mechanical parameters list included with delivery.
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Position	Device	Description
A	Side adjustment	Main setting for reciprocal machine alignment. Range of: 0 - 40 [mm].
B	Width adjustment	The product width can be adjusted in [mm]. TIP! Allow 2 [mm] of play in the product width setting.
C	Depth adjustment	The product depth can be adjusted in [mm]. TIP! Allow 2 [mm] of play in the product depth setting.
D	Hand crank	The hand crank can be used to move the stacker lift out of the limit switch positions.
E	Lift columns	The lift columns of the automatic turret magazine can be raised a maximum of 400 [mm] to align the machine reciprocally with a hand crank.

## 9 Contact Information

	<p>RonTech AG Rheinstrasse 59 CH-7012 Felsberg Phone ++41 (0)81 257 01 00 Fax ++41 (0)81 257 01 01 E-mail: www.rontech.ch</p>
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